GENDER PERPECTIVES IN HIGHER EDUCATION

BY: DR WAZIR JAHAN KARIM
CHIEF EXECUTIVE OFFICER
ACADEMY OF SOCIO-ECONOMIC RESEARCH AND ANALYSIS [ASERA]

EDUCATION AS A UNIVERSAL RIGHT

Education is a basic right for all men and women and a precondition for personal and social progress, but it requires democratic developmental institutions to realise its objectives of personal and social progress. To achieve a high level of sophistication in education, personal and social progress must be linked to social and gender equality. The unequal emphasis on one gender removes the rights of half of an active productive population and this is itself is an obstacle to social development. Education then is part of a chain of human development which reflects the necessary experiences of life–intellectual growth, social development, and transformation of values, political participation and decision-making. This chain of human development thrives against a background of democracy and the promotion of an open liberal education system which encourages creativity and constructive criticism. However it should also be accessible, flexible and empowering to enable the advantaged and disadvantaged sections of the society to benefit from it equally.

TRENDS AND PERSPECTIVES

In the 1960's education was still seen by those concerned with aid and development as a quantifiable investment. Economic growth and living standards were expected to rise automatically as education improved and more people participated in industrial development. Research and experience have shown that a skilled labour force is necessary but not a sufficient condition for economic development. At the end of the nineteenth century and the beginning of the twentieth all industrial economies were founded by part of a relatively well educated labour force. None of the 34 richest countries achieved noteworthy economic growth before introducing general elementary schooling. All the newly industrialised Asian countries such as Hong Kong, South Korea, Singapore and Taiwan have maintained high rates of economic growth over the past 25 years. [Lockheed and Verspoor, World Bank 1990,p.2]

In the 1970's it became increasingly accepted to view education in relation to the qualitative and innovative development not only of society but also of the individual. Education became geared to people's specific living and working conditions. In this way 'learners' would have an involvement in their education. Ideas on education also focused on the promotion of awareness on structural changes within society, including the increasing need for gender equality in the pursuit of knowledge. The first Women and Gender Studies programme in Universiti Sains Malaysia [KANITA] had as its mission statement 'Education as the Democratisation of Knowledge' [W.Karim.2001]

The 1980's were marked by two developments. On the one hand many developing countries faced economic setbacks which also impeded the development of education; on the other, education was no longer pigeon holed into rigid categories – formal, non-formal and informal, general and vocational–basic boundaries in terms of organisation, structure, curriculum, contents and methods became blurred. This increased interest in generic and in inter-disciplinary 'studies' approaches – Women Studies, Gender Studies, Family Studies, Minority Studies, Feminist Studies, and so on. The philosophy was very much grained in the three basic concepts of open learning – 'social justice, social equality and the democratisation of knowledge'

At the end of 1980's reappraisal of gender issues in education promoted the idea of education for all of as a universal right of women and children. This produced analysis of past failures on why higher education continued to run its old elitist flavour. New approaches were needed to achieve faster progress despite cut-backs in public universities and colleges. The contents of many inter-disciplinary course packages began to match policy with action programmes.

1. Expansion of early childhood care and development activities, including family and community interventions, especially for poor, disadvantaged and disabled children.
2. Universal access to and completion of primary education [or whatever higher level of education is considered as basics] by the year 2000
3. Improvement in learning achievement such that an agreed percentage of an appropriate age cohort [e.g. 82 percent of 14 year olds] attains or surpasses a defined level of necessary learning achievement.
4. Reduction of the adult illiteracy rate [the appropriate age group to be determined in each country] to half its 1990 level by the year 2000, with sufficient emphasis on female literacy to significantly reduce the current disparity between male and female literacy rates. An emphasis on support systems for women with children.
5. Expansion of provisions of basic education and training in other essential skills required by youth and adults, with programme effectiveness assessed in terms of behavioural changes and impact on health, employment and productivity.
6. Increased acquisition by individuals and families of the knowledge, skills, and values required for better living and sound and sustainable development, made available through life-long learning through multi-media approaches and distance learning with effectiveness assessed in terms of behavioural change and transforming values. [See : Final Report, WCEFA, p 53]

THE SUSTAINABLE DEVELOPMENT OF EDUCATION

Sustainable economic growth, equitable income distribution, the satisfaction of basic needs and involvement in the life of society for as many people as possible constitute the principal elements of a policy geared to combating poverty. A World of Difference: *A New Framework for Development Cooperation in the 1990's,* Policy document, 1991, p. 159

In the new millennium, education and the agenda for gender equality became inseparable. The engendering of knowledge became an essential part of the education for all women at all levels and women's knowledge became more clearly associated with cultural wisdom and indigenous intellectual resource. The education of women was seen to be the strategy to revive, uplift and upgrade cultural wisdom and indigenous resources to global knowledge and resources for sustainable development and advancements in bio-medicine and biotechnologies.

The ideal purpose of development cooperation was to improve the conditions of the people in the developing World. This included the elimination of inequalities in access to the means of production, including knowledge, and the narrowing of disparities in wealth and living standards. The conviction has gradually grown that sustainable development must be based on local talent and potential and the mental and physical capacities, both individual and collective of local people. External aid is at best a temporary instrument that can help people extend their capacities and thereby guide their own development, make their own choices and reach and implement their own decisions. Here women are often the core of knowledge of local people. In Africa and Asia, more than 70% of food and food-based industries are grown and developed by women. With globalisation, education becomes a value in itself. In the acquisition of new knowledge, skills and concepts, the stimulation of indigenous skills and creativity is essential for the transformation of values and attitudes of women in local communities.

Asia's biggest challenge on globalisation is the scene of an ongoing interaction between human beings in which knowledge, attitude and skills are transmitted or exchanged: people learn to relate to others both in their own group and in other subcultures and cultures, and their ideas and creativity can lead to social and cultural innovation. They can also build up knowledge through experimentation and experience and gain new ideas in the process. It is this cultural armoury that enables women to develop themselves mentally and materially. A fundamental component of women's knowledge are values on the social and natural environment which relate to nutrition, health and means of livelihood. How one deals with another, with outside world and with the supernatural is a core component of the spirituality of women. Hence in most Asian cultures women are ritual specialists and food providers, food–giving and food exchange is a vital component of human relations. Social stability can be measured in terms of the frequency of food exchanges and food sharing in festivities and ceremonies.

New information entering a culture, must find a place in the existing cultural context. If no adjustment occurs protracted friction may result. Cultures cannot always respond quickly and appropriately to new elements coming from outside, which may be supported by physical power or economic dominance; receiving groups are often pushed aside as a result, while the indigenous cultural armoury may come to be seen as obsolete and useless. Hence it is important for women to take center stage in intellectual innovation. Education generates more modern attitudes; this is not the same as Western, even though increased economic and technological communication may lead to Western values being more readily accepted in the formal schooling system, from nursery to higher levels. The responsibility of developing values may be divided; there may be a separate Ministry for higher Education and research, while colleges providing vocational education may come under the relevant Ministry [schools of agriculture under the Agriculture Ministry, Schools of Nursing under the Health Ministry, Technical Colleges under the Ministry for Industry]

Non-formal education may also be a major source of enriching cultural values where knowledge is gained as a life experience. It becomes an end in itself. However, it generally receives only marginal attention from the Education Ministry, in the form of lifelong learning and social education. Sometimes Ministries concerned with youth affairs, labour or community development fill the gaps with variously modest or ambitious programmes of non-formal education, but their budget is small and their bureaucratic status low, with the result that their share in the overall educational provision remains relatively modest. In many Latin American countries large semi-state agencies for non-formal vocational training have developed outside the Education Ministries; their programmes tend to be popular among employers but their students are mainly youngsters who have dropped out of the school system. Differences of status between formal and non-formal education and the lack of cross-over procedures between the two systems also produce a sharp division between the learning routes followed from rich and poor backgrounds.

In most developing countries private organisations play a considerable and indeed sometimes dominant role in education. Governments are forced by a lack of funds to make use of local capacity to mobilise resources to establish and maintain schools. Local communities have to organise themselves to generate the funds, materials and labour needed to build schools and receive only a contribution from the government for basic essentials eg; cover some or all of the costs of teachers' salaries.

Some developing countries such as Egypt and India have long possessed institutions of higher education where scholarship has been practised in a range of indigenous disciplines which have now captured a global market. The universities developed fastest in Europe, probably due to the rapid economic, social and cultural growth which marked the continent over several centuries. In the mid twentieth century, when most developing countries gained independence, there were relatively few institutions of higher education in the developing world. Africa possessed few university institutions which were often little more than distant annexes of European universities. In Africa only 1.4percent of the 18-24 age group were in some form of higher education in 1960; in Asia, which already had long university tradition, the figure was 8.7 percent. In the Arab world (including Egypt, with it celebrated institutions of higher education) the participation rate was

only 3.9 percent, while in Latin America the figure was just 5.7 percent. Europe, with its greater tradition of higher education, still achieved only 12.9 percent participation in 1960; only in North America was the figure significantly higher, at 30.4 percent.

Between 1960 and 1987 as the proportion of students in higher education rose rapidly, budgets for research and innovation lagged behind the growth in numbers. Compared with other costs of education, materials and staffing costs per student are far greater in higher education; in addition there is the cost of providing additional laboratories and research stations for centres of excellence. Malaysia developed mosts of its 26 public and private universities over the last five years between 1999 - 2004 due to accelerating demand for education but at the same time increased its numbers of research institutes and centres by three fold. The involvement of Government linked Corporation [GLC's] to pioneer private university education and research was a strategy to reduce operational costs.

In most countries there are wide gaps between male and female participation in research with women generally having less access to graduate education. Some countries have launched experimental schemes aimed at bringing more women into research institutes and centres. In Sudan, Pakistan and India universities for women have been established, leading to an increase in the number of women engaged in research. However most research based positions as research assistants and offices are dead-end careers and only meaningful when they are translated into permanent careers as research scientists or academicians. Hence it is essential to fully engage graduate students in research projects which can enhance their opportunities in the academic or research institutions in the long term. Higher education in Asia has changed markedly in a number of ways in recent decades, with both numbers of institutions and participation rates rising rapidly. In Indonesia and Malaysia there has been a proliferation of institutions calling themselves 'universities' and the government has reacted by designing leading universities or research universities and introducing monitoring and approval systems which promotes quality education in private institutions. Demands for places in higher education is growing in all countries, putting pressure on staff and finances. This eventually affects the research strengths of developing centres. In some cases [e.g Eastern Indonesia] distance learning is used where research based centres are deemed as unsuitable. In other countries private universities flourish, such as in the Philippines where 85% of all students attend private institutions. Privatisation is increasingly leading to privately funded research. Since cuts in public spending on higher education began in the early 1970's a large proportion of higher education has been provided by private institutions, sometimes with heavy financial support from government. In term of quality education the state universities, particularly in the provinces, often fall short of the facilities and services provided in private institutions. In all Asian countries the non-governmental sector is beginning to play an ever more important role. It is hoped that this will also lead to an emphasis on research funded by private donors, laboratories, hospitals, think-tanks and academies.

Finally a number of countries are seeking to increase their universities research capacity and to focus research efforts more on local concerns. In many countries teachers' salaries are low, with the result that some leave their position in the university while others take one or more jobs. This adversely affects research since it offers too little reward and eventually retards technical and professional excellence.

MANAGEMENT OF EDUCATION

Education is generally seen as a core area of government activity; with the odd exception it is one of the biggest items in states' budgets. Large bureaucracies are often developed to manage it. Even so there are wide differences among developing countries in the extent to which central governments runs education itself or shares responsibility with regional or local governments or with non-government organisations. At the central level the divisions of responsibility between different Ministries and semi-state agencies are often unclear.

The management of education in a country closely reflects its core administrative and political system. Often the structure of educational administration follows that of governments with its various tiers. A longside

schools which are the direct responsibility of the Education Ministry there are others run by provincial or local governments. This can lead to administrative problems, four of which are considered below

1. The social function of public administration is not just to deliver services but also to mobilise the population [e.g at election times] and to share out government jobs. Since education is the largest and most widespread area of government activity in most developing countries, it is hardly surprising that personal policy within the education system is not guided solely by professional criteria.

2. Ministries of Education are complex and hierarchical systems, with varying powers, functions and competences. A school may depend on the local authority for the appointment of its staff and the maintenance of its buildings, while in the areas of curriculum, examination requirement and quality control it is subject to the central departments of the Ministry. Generally everything is determined centrally: finance appointments and conditions of service, curriculum content, the distribution of books and equipment, quality control by the inspectorate, advisory services and building management. Increasingly there have been moves towards the involvement of local people, but substantive participation remains virtually unknown.

3. Education Ministries tend to go in for empire-building, avoiding or monopolising cooperation with other organisations. While calls for cooperation between the worlds of education and employment are common in practice cooperation between education authorities and industry is minimal. There are also considerable problems on the more practical side of educational management. Intermediate management agencies [inspectorate advisory services, organisations responsible for building and maintenance and for distributing books and equipment] are rooted in the hierarchical and general centralist government bureaucracy; as such they are characterised by lack of initiative [no decisions without approval from above], excessive faith in bureaucratic procedures [administrative control rather than help and support] and insufficient contact with the day-to-day realities of education [office work before visits to schools] Often the same person has both monitoring [quality control] and support [quality maintenance] functions, with tasks relating to both the content of education and the management of physical resources. As a result the many one teacher schools in remote areas lack any form of support and supervision, even though their need for help is the greatest.

4. Finally, complex organisations structures and poor communications by post, telephone and radio often hinder the flow of information from central to local level and vice versa. Great efforts are often put into collecting information on education, much of which is then not used for policy purposes because of qualitative and quantitative shortcomings in processing capacity. There is an urgent need to strengthen administrative information systems to underpin education policy

RESEARCH AND DEVEOPMENT

The precarious economic situation in which many developing countries find themselves has taken its toll on research. Research in higher education is increasingly dependent on funding by donors, who can thus exercise great influence on the determination of research priorities and actual research programmes. The development and reinforcement of local capacity and infrastructure for educational research is vital.
Its purpose is to enhance the ability of individuals and institutions to approach the solution of problems from a practical [to achieve 'objectives'] research perspective. There are still too few examples of educational research in which the links between research, policy, practice and social change are traceable. In addition to shortages of funds and the fact that many researcher are left little time by their teaching and administrative commitment, factors contributing to the less-than-rosy state of educational research include the following:-

- The choice of topics relevant to the nation or region.
- Social and political constraints on research which render it inefficient
- The adoption of single-discipline approaches not geared to the solution of practical and policy-level problems.

- The identifications of research priorities at central level without any involvement of people with practical responsibilities and with an excessive concern with financial feasibility
- Inadequate capacity for translating research results into policy and practice, reflecting the lack of a research policy which focuses research efforts on real problems. What little research capacity there is provides too little scope for research into learning processes; moreover research agendas in developing countries are still determined to a great extent by donor's programmes and wishes. There is an urgent need to expand and improve research capacity in universities, Education Ministries and other institutions.
- In the light of the urgent questions relating to quality and relevance, research needs to address many issues, among them the following :-

- What local knowledge, values and types of learning process can be integrated into existing education systems, with a view to enhancing the relevance of content, the effectiveness of the transfer of knowledge and learner's cultural identity.
- Given pupils' and students' learning needs and social and cultural characteristics, what are the most effective forms and methods of teaching for the transfer of knowledge, the acquisition of skills and the development of values and attitudes.
- What is the best way of preparing youth for a productive life: through a largely undifferentiated system ``of general education followed by vocational training in the work environment or through a differentiated `system of specific training courses which produces specialists?
- What requirement must education satisfy to achieve specific objectives such as halting the exodus from the countryside to the cities, improving the position of women or ensuring the responsible use and management of the natural environment?
- What means are best suited to increasing local communities' involvement in the practice, organisation, management and funding of education?
- What type of training is needed to prepare teachers for existing and new tasks? What form of training is most suitable?
- How can the management of education systems and of schools be improved?
- What requirement must non-formal education satisfy to interest participants in learning programmes
- To what extent are the answers to the above questions gender-specific?

While research on these various themes is being carried out at national and international levels it is still by far too small a scale. In the West few educational researchers concern themselves with education in development countries. One exception is the Centre for the Study of Education in Developing Countries [CESO] in the Netherlands, while UNESCO's International Institute for Educational Planning [IIEP] has in data computation and analysis may be seen to be part of human resource development and capacity building. Institutions specialising in technical computation and analysis are lacking in developing countries although one such institution is INNOTECH, a research and training centre based in Manila in the Philippines.

More intensive cooperation and exchanges of methods and results could help speed and strengthen developments in the area of educational research [research networks, the training of researcher, the exchange of methods and information] The importance of strengthening local research capacity is also central to the vision of the Cooperation [RAWOO]. This topic was considered at the conference on development-related research held in Groningen in 1990, as reflected in the policy document A *World of difference*
[pp. 33-2]

EDUCATION FOR GIRLS AND WOMEN

The number of illiterate young girls and women have not significantly decreased over the last five years. In the year 2000 and now as we approach 2005, around 110 million children have no access to education: 60 percent of them are girls. The majority of women aged 15 or over in Sub Saharan, Africa, North Africa and the

Middle East and South Asia never went to school and cannot read or write; in the case of Latin America and the Caribbean and East Asia and the pacific the proportion is around a quarter. Moreover many girls who attend school do not complete their education. The highest rates of female illiteracy are to be found in poor urban areas, rural areas and countries where the general literacy rate is low. Throughout the world there are differences in boys and girls' education, not only in access to learning but also in the scope for deriving real benefit from it. Women generally have a lower level of education than men and make very different choices, affecting their opportunities on the labour market and in society at large. Women have less chances of building a career and are underrepresented in senior positions; they also earn less than men in similar jobs.

The inequality and disadvantage which girls and women face in education can be explained by the following factors.

1. Factors relating to family and culture

   The economic position of the family affects women's participation in education. In low-income families boys are generally more likely to attend school than girls, who are expected to take on the burden of a wide range of household tasks, while the fact that girls are more likely to be overtired and undernourished means that they perform less well when they do attend school. Finally, cultural and religious values may tend either to encourage or to discourage the education of girls and women.

2. Factors relating to the school

   These factors, which come into play in the case of formal education and institutionalised non-formal education, relate on the one hand to e.g. access to education and on the other to the educational process itself and discrimination within it. Greater access does not necessarily remedy the disadvantage facing women; e.g. in some Latin American countries girls may receive more education than boys, but this does not change their subordinate position in society or improve their access to employment

3. Factors relating to gender

   These are factors which tend to maintain the dominant system of thought and patriarchal power relations within society. Norms, ideas and attitudes may be transmitted through education which reinforces women's subordinate position, and one result is that parents tend to have low occupational expectations for their daughters. In most cases this corresponds with social reality, with women having less access to the better jobs than men. Where the labour market affords educated girls and women no opportunity of finding decent work, education has no economic pay-off and is seen pointless. Parent's aspirations are affected by their educational background, as are the kinds of education followed by girls; these are conditioned by women's subordinate position in society. The subordination of women does not imply that their role is unimportant; however in Africa women represent almost 70% of the agricultural labour force. More and better education for women and girls, even when aimed at producing better wives and mothers, also includes an element of awareness-raising; it provides women with knowledge which helps them to organise their lives and to bring greater influence to bear on changing the existing social order; it gives them levers with which to strengthen their own power.

Education can provide women with the knowledge, skills and capacities which enable them to take greater control of their own lives. In the international women's movement the term 'empowerment' is often used in this context; it is closely related to the notion of autonomy. The various components of the empowerment process need to permeate education if they are to lead to women's emancipation and participation in society

1. The cognitive [cultural and ideological] component: recognition of the mechanisms of oppression and discrimination.
2. The psychological component confidence in one's own abilities, enabling women to work to change their situation.
3. The economic component: women's financial independence. This implies not just the development of productive activities but also real income generation. Account must also be taken of women's other duties;
4. The political and organisational component: mobilising and organising women so that they can take collective action to change their situation. Here education is tied up with social action and social change.
5. The social and cultural component; the norms and values permeating education may impede the development of women and allow their ideas, experience and expectations to be ignored.

Interdependence often incorporates many dominant western elements. Sustainable development requires the right combination of renewal and the acceptance of incoming elements on the one hand and reflection on indigenous society and the indigenous cultural heritage on the other. Women play a crucial role in filtering and interpreting new information to construct new knowledge for the present and future generation.

Education also influences development through its enduring impact on various dimensions of cognitive competence: reading, arithmetic, modern behaviour and problem-solving ability. These skills influence productive behaviour and the ability to reap the rewards of change. Those who can read write and calculate have easier access to employment and find themselves in better paying jobs. Lifelong education is crucial for women to cope with the influence of new technologies, and work cultures.

Higher education was long the preserve of an elite people who possessed certain mental and intellectual gifts, adequate financial resources or a combination of the two, and universities were therefore prestige-conferring institutions. The twentieth century brought some slight change in these situations as the ideology of the democratisation of the knowledge spread to include more practical vocational and technical programmes.

As independence was achieved many universities were established in Africa and Asia – the new nationalism demanded that each country possessed at least one and in many countries it was the higher education sector that grew the fastest. More than other forms of education, it contributed significantly to political socialisation, with the students themselves often playing a part. Pressure from political parties has sometimes caused institutions of higher education to grow too rapidly enable more students to be admitted than capacity allowed. This lead to compromising standards and quality of teaching. In Malaysia where girls are doing significantly better than boys at 60% to 90% of enrolments in courses in arts, social science, education, management, pharmacy, medicine and dentistry, the pressure to take in more boys has compromised standards of academic excellence and had indirectly and directly led to a culture of mediocrity in higher education enhanced by heavy teaching loads and inadequate time for research and innovation.

The Gender of Lifelong Learning

Many Asian countries have provided various opportunities for lifeong learning for women in the form of distance learning programmes, evening schools for languages, business and accounting including especially tailored programmes on modern farming and management. However some physical and psychological barriers still need to be overcome in South, Central and East Asia. These relate to the following obstacles:

1. Deeply rooted stereo-types of gender roles, that it may not benefit women who are still required to fulfill their duties as mothers and wives. The unconscious lack of recognition of discrimination by sex,

also unconsciously exists in women's mind. Women are pessimistic about the importance of education in not being able to put to good use their achievement in the domestic domain, should they be prevented from pursuing productive careers after marriage.

2. Little participation by men and fathers in family education and household affairs, and the imposition of an excessive burden on women who are duty bound to care for children and the aged.

3. Undue emphasis on cultural and liberal arts studies which are not feminist in ideology and practices and so contribute little to the development of empowerment and solidarity, and problem-solving in women's issues.

4. Community activities of women's organisations without the participation of working and professional women restricts the flow and sharing of important new knowledge across different groups, ethnicities and classes.

5. Difficulty in re-entering the workforce after the first few years of productive childcare and later after the maturation of children, due to the lack of career consciousness and information about the current female employment status as well as vocational capabilities.

Lifelong learning can be successfully implemented if the following factors are overcome before programmes are instituted:-

1. Motivational seminars to change traditional stereotyped gender roles about men and women in society. Transformation of values take time but the consciousness of change and sensitisation to the need for change and reform must be set into motion.
   [We wind up clocks to set time in motion.]

2. The promotion of joint participation of men and women in parental family and kindred responsibilities and community life

3. The development of technical proficiency and vocational capabilities to prepare women for working life.

4. Active networking to pool together women of different socio-economic, political and religious backgrounds to enable them to share from each others experiences, including indigenous or professional wisdom.

5. Development of international understanding and exchanges in Women In Development [WID] programmes so that GO's, NGO's, NGGO's can work together as equal parties in the development of civil society.

6. Using ICT applications effectively to develop information networks useful in resolving women and family issues.

In Japan, Women's Centres such as the National Women's Education Centre have set the clock in motion by introducing five study processes as in lifelong learning programmes – recognition, understanding, selection of issues, solving of issues and evaluation of the results.

1. *Recognition:* Developing awareness of stereo-typed gender roles in everyday life.

2. *Understanding*: Learning how these gender roles are culturally and socially generated and how they hamper individuals from making free choices in the way they wish to live.

3. *Selection of Issues*: Clarifying the particular gender sensitive issues that they are currently faced with.

4. *Solving of Issues*: Practical exercises to changes one's attitude towards gender-based division of roles and developing wide-ranging life skills without regards to their gender.

5. *Evaluation*: Evaluating the effectiveness of the programmes for themselves.

In the early 1990's in relation to the growing concern for Women In Development [WID] programmes, National Women's Education Centre conducted a survey on the current trends of policies and social participation by/for women through Women Studies in the Asia-Pacific region, in response to UNESCO's programme, to promote women as agents of social change. The aim was to evaluate the extent of support given to educational research in Women Studies Programmes for the improvement of the status of women. Thirteen members of this research team, including researchers of China, Korea, New Zealand and India, analysed and clarified those topics such as the] role of women in social change, gender-stereotyping, joint parental responsibility and women's economic productivity. It was found that while women were interested in lifelong learning programmes, they were concerned for their existing domestic responsibilities. The results of the study reflected a general challenge to Asian women who were aware of the need for change but required more exposure to informal learning programmes to benefit from consciousness raising, status promotion and economic power.

While it is clear that lifelong learning in an asset for self realisation and empowerment, a transformation of socio-cultural values have to be externally driven through policies, motivational programmes and networking. The cultural system produces values which control gender roles at the most fundamental level and this can only be overcome if lifelong learning imparts learning strategies which are both psychological and social.

In the new Information Age, employment structures will be influenced by people with talent rather than age and gender. Hence the balance of power between women and men in the labour market will reflect their global competitiveness to meet the challenges of new work cultures in a global environment. To ensure that the balance of power shifts in favour of women, women should develop extensive networks to strengthen their organisational bases and to bid for jobs, projects and contracts in groups rather than in isolation of one another. In Korea, it was found that women ten to emulate men at work, rather than harness their existing networks and bases of power and influence to their advantage. Studies show that women go along with the standards that men set in their work organisation and follow male role models. [Choi Sin Duk, Kim Chong Sook ed, 1983] In doing so, they end up as their assistants or secretaries; women tend to carry out their activities which men value highly and for which they get credit. As a result, they give up the activities they wish to pursue in order to implement the activities that are valuable to men.

To discover hidden drives, talents, energy and creativity, women's social identity has to be formulated as members of a changing productive sub-culture. Cohesiveness in a sub-culture system results from increasing numbers of active women grouping together on common agendas and participating in voluntary women's organisations to arrive at common goals and aspirations. These groups and organisations can form highly successful cooperatives educational networks and social support systems. It can also be a base to formulate or mobilise political power. Hence non-productive subcultures can be harnessed and re-energised to be productive through lifelong learning programmes and innovative forms of employment. The cycle of lifelong learning develops its own *rites de passage* of empowerment. Women tend to accommodate to their own gender gap by accepting their own limited votes and capacities. Opportunities do not come in their way to stimulate rethinking. This is especially so when they are deprived of economic and political power. Hence lifelong learning provides women with the will to change and the willingness to be a productive member of society. The psychological and social inputs are as important as the technical and professional and it would be a mistake to turn on the taps before understanding what the gender subculture is about.

Scientific Education and Communication Information Technologies In Lifelong learning

In the Information Society of the twenty-first century the pace of technological development reflects the complex interdependency between harnessing new talents in capital-intensive industries, and the rapid pace of change of knowledge in technology – intensive industries. Even as there is an increasing need for creative technicians, automation will speed up at home, office and industries, blurring the distinctions between work and social spaces. The home resorts back to the firm family of the nineteen forties and the formal organisation becomes a one step centre for shopping, work, recreation and networking. New directions in women's education is essential as the field of science and new areas in material sciences information, communication, electronics, life sciences, environment, energy, bio-resources, space, aviation and navigation will determine the trends of new employment for women. At the same time, the demand for multilanguage proficiency will explode and the most flexible and versatile resourceful person will be assured of the best jobs in these new scientific fields.

In Japan, Korea, Hong Kong and Malaysia the number of women scientists are increasing annually but the absolute numbers remains small. In Japan, women organisations such as the Society of Japanese Women Scientists, Japanese Women Engineers Forum and the Women Scientist Forum promotes\ the scientific activities of women to raise the public awareness of science and technology. The Society of Japanese Women Scientists organises the Support Program of Empowerment for Women in the Scientific and Technology field. It also holds international conferences of women engineers and scientist in ICT's

The National Women's Education Centre has yearly invited Japanese officials in charge of women's administration in the Asia-Pacific region to attend the NWEC Training Course For Information Processing on Women's Issues for Overseas Specialist [ODA project]. More than 25 Asian countries have participated in this course. The promotion of technologies appropriate for women's needs will still have to depend on the kind of industries which are favoured in the post industrial age, so in a sense new technologies are not easily geared to be *gender-sensitive* as *globally sensitive*. They must meet the needs of the new markets in ICT and bio-technology. Women need to be skilled workers for greater efficiency in production or they will be displaced. Advances in industrial and bio-technologies will require women to upgrade skills or run the risks of loosing their jobs. Women who work in manufacturing industries such as textiles and garments may be displaced by new generations of robots.

The implementation of the policy of import liberalisation which is part of the free trade provision of the General Agreement on Tariff and Trade [GATT] may have detrimental effects on women workers whose productivity will now be tested globally against humans and other robots. In the area of farm and forestry management, modernisation and mechanisation of farm and forestry techniques are crucial in the age of large scale farming schemes run by multi nationals. The promotion of technological innovations, rural infrastructures and facilities, agriculture extension training must be accelerated to improve the rural women's working conditions, but in most of Asia, such technologies and services have not been made available to farm women who as a result have not successfully increased their productivity. It is only in a few large-scale farming programmes that advanced technologies are accessible to workers including women. In the Philippines the Department of Environment and Natural Resources [DENR] had enabled non-governmental organisations to participate in deforestation projects of the government. It also became necessary to replant the mangrove forests, transplant sea grass and clean up the dead rivers to clear them of pollutants. The National Reforestation Program offers projects like the monitoring and evaluation of denuded forest lands, contract reforestation, community forestry, reforestation, coordinated projects of upland communities, rain-fed rural development projects and the natural resources management program. But while some NGO's had participated in the project of the DENR, smaller NGGO's have not been prominently involved. The concern of most of the NGO's and NGGO's were in the mobilisation of protests and demonstrations against loggers and logging activities. The action taken in some provinces like Bukidnon, Misamis Oriental, Cagayan Province and Nueve Ecijawere were in putting up human barricades and hunger strikes. They also held marches, rallies and demonstrations and lobbied for legislations against logging in the Philippines. A law banning logging was finally passed by the legislature.

However farm and forestry management is not just about checking the action of multinationals through the protest movement. It is mostly about learning the technological advancement in the fields to keep abreast of new orientations in careers in these fields. They must be able to make better choices based on new knowledge acquired through lifelong learning. Educational opportunities for women at the university level have expanded appreciably in the recent years in all Asian countries and in absolute terms for women enrolment in all faculties in higher education has trebled over the period 1975-1992 in S&T faculties comprising Science, Engineering, Technology, Agriculture, Veterinary Science and Medicine – from 28.5% in 1993 to 40% in 2003. Although professional fields in engineering and agriculture continue to be dominated by men both in absolute and percentage terms, women's enrolment in medicine and science is almost equivalent to men so that one can see increasing contribution by women in bio and geosciences. In Malaysia however girl enrolment in science and technology are equivalent to boys except in ICT and engineering. Girls have overcome boys in medicine, pharmacy, dentistry and biology and are running specialised careers in these fields. For those who are unable to pursue careers thorough universities, a proliferation of institutes and colleges offering diplomas and advanced diplomas have given other access to science and technical degrees through different modes of entry. Lifelong learning is about mastering procedures of adding on learning blocks to finally achieve the target one has set but more guidance in building the blocks are needed to prevent time wastage.

ICl Education and the Digital Divide

It is important that the pursuit of higher education and employment does not contribute to the digital divide between rural and urban populations. In Malaysia, 60% of women in cities and towns are from rural areas or rural immigrants to the city and although the percentage of second or third generation urban Malays and Indians is increasing gradually, the percentage is still small. This continuous migration of young educated and skilled rural men and women to the towns and cities of Malaysia actually contribute to the digital divide since those who are left behind are relatively older, less educated with less ICT skills and knowledge and with lesser ambition to excel. Hence Malaysia's digital divide is also attributed to the brain drain and depletion of young talent from the rural areas. As long as opportunities for human resource development and capacity building are limited to towns and cities, rural areas will continue to suffer the dearth of skill and talent necessary to spur on the countryside towards higher levels of human and social development. Most Malaysian rural women obtained their formal learning and training in ICT from colleges and Institutes located in towns and cities. Hence once they qualify, they are reluctant to return to rural areas to utilise their new skills commercially because few job opportunities await them.

Farming with New Technologies

Malaysia does not yet enjoy a wealth of computer savvy farmers as in Europe, the United States and Canada where the spouses o farmers of either gender supplement farming activities by checking prices of grains, fruits, vegetables and other farm products on-line and decide to withhold or increase consignments according as to current market prices. In the Republic of Korea, for example, farmers were already using ICT under the Samal Undong Programme from as early as 1979 [personal observation of key consultant from technical visit, 1979] Many other rural based activities such as transport services, handling charges, communication with government marketing agencies [as with FAMA in Malaysia], banking and credit are done on-line in developed countries and this may only be possible in Malaysia if rural farmed women are also encouraged t undergo training in ICT. Even if self-initiatives are not developed, the push for lifelong learning programmes in ICT may be a new advantage to rural women. ICT programmes may be tailored for rural women to assist in farming and marketing including accounting and financial management. Another factor associated with the digital divide is in 'self-initiated learning' concerning the appropriation of knowledge from the computer and internet. In Malaysia, a male preference in ICT based industries is observed in 15% of human resource management who deal with recruitment. The preference for men is linked to the observation among human resource mangers that men are more adaptable and more interested to learn hands on experience. Most

computer specialist will admit that new ICT knowledge is mainly acquired through self-learning and that advancing ICT skills is best done through experimentation and practice. This requires considerable time and patience to practice and perfect certain applications. Since most of these value-added skills are gained after office hours or at home rather than during office hours where date-lines have to be met, self-learning becomes disadvantageous to women who are unable to spare much time experimenting with software if they have other commitments associated with domestic work and childcare. If self-learning becomes impossible and extra training is required, women are also unable to spend extra hours attending courses unless these are arranged by their employers within working hours. Hence generally, self-learning is an added advantage to working men rather than working women. Unmarried women may be more able to do this than married women but upgrading of skills is essential. However, once marriage occurs, upgrading may be a difficult task in the long run.

In conclusion, many issues associated with the digital divide can be indirectly concluded through the study of formal organisations, both public and private. These are urban-based or urban-centered and it can be assumed that rural women who are not working in rural organisations have chosen to find work in the city for economic reasons. Hence the much talked about digital divide is caused by the rural-urban drift of skilled young technicians and graduates into the city. This exaggerates the digital divide based in ethnicity, age and gender. Sociological statistics does not always indicate a problem in its right context if the underlying causes are not fully analysed. This shows that other issues relating to infrastructure of ICT's, upgrading of telecommunication, lifelong education, human resource development, and employment opportunities play a major part in contributing to the digital divide.

CONCLUSION

The message in lifelong learning is that women with education and who value education see their empowerment through uniting the lives of their children, community and society. A nation is reborn when this happens. The education of women is incidental but a nation is reborn. *A global plague shapes itself in Patriarchy, Poverty and Persecution, the three Big P's which must now suggest the passing of a bygone era.* Lifelong learning is the three Big L's and PPP the Big P's of today. People have choices. Educationists liberate through *Letters of the League* and have chosen the Big L's. It is up to men, the key players of society to surrender to the test of change.

"New knowledge is power but power is only powerful when it empowers others to seek new knowledge." [Karim 2002]

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